STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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March 7, 1986

CERTIFIED RETURN RECEIPT REQUESTED
(P592 431 336)

FILE COPY

Mr. Glen M. Eurick
Environmental and Occupational
Health Coordinator
Barrick Mercur Gold Mines, Inc.
P. O. Box 838
Tooele, Utah 84074

Dear ~~Mr.~~ Glen Eurick:

RE: MRP Amendment Plans, Mercur Canyon Project, Marion Hill, Golden Gate and Sacramento Pits, Mercur Mine, ACT/045/017, Tooele County, Utah

The application for Mining and Reclamation Plan (MRP) permit amendment plan submitted by Barrick Mercur Gold Mines, Inc., on January 15, 1986 has been reviewed by the Division. The following review comments identify specific deficiencies in the current submittal and reiterate those conditions which remain unaddressed from the previous leach dump proposal. Please be advised that each of the specific deficiencies must be addressed before the Division can continue its review process.

The proposal consists of adding the Marion Hill pit, the Golden Gate pit and the Sacramento pit to the mine plan. Additional facilities included within the proposal include road systems, drainage control areas, dump leach pads and other ancillary facilities to be used in conjunction with the new pit operations.

Conditional approval was given to Barrick for the construction of #1 and #2 dump leach pads, subject to the conditions of letters dated July 29 and September 27, 1985, as follows:

1. Barrick Mercur Gold Mines will post a reclamation bond in the amount of $4,197,593. This amount shall be posted by Barrick to replace the current reclamation contract for the Mercur Mine between Getty Mining Company and the Division. This amount is identical to that provided in the Mercur Mine Reclamation Cost Estimate and submitted to the Division on July 12, 1985. This amount will be held by the Division until a completed reclamation plan has been provided by Barrick and approved by the Division.

Barrick has provided the bond to the Division and the above condition has been met for leach dump areas 1 & 2. However, the bond must be revised to incorporate the additional pits and facilities associated with the January 15th submittal.

2. The conditional approval to proceed with the construction and operation of leach dump Areas 1 & 2 will not release Barrick Mercur Gold Mines, Inc., from complying with or satisfying any additional concerns or requirements as indicated in the attached review document or by other state and federal agencies.

Remaining technical concerns and comments regarding this condition will follow in the review comments.

3. Barrick Mercur Gold Mines shall respond to the following concerns and comments of the attached review document with their proposal for additional mining operations in the adjacent area, or, separately. In any case, Barrick shall respond to all requests for additional information concerning the proposed dump leach operation on or before October 30, 1985 as part of the terms and conditions for conditional approval to operate dump leach Areas 1 & 2.

Barrick has partially submitted information regarding condition #3 within the prescribed timeframe. All of the information that was required for approval was not sent to the Division prior to October 30, 1985. However, a letter was received on October 30th requesting an extension until January 1, 1986 to submit a response to the remaining conditions. This information was to be incorporated into the new application for the Marion Hill, Golden Gate and Sacramento pits. The new proposal, received January 15, 1986 does not contain all of the information required in order to determine the mine plan complete.

DEFICIENCIES IN THE PROPOSAL WITH RESPECT TO THE PREVIOUS CONDITIONAL APPROVAL FOR THE LEACH DUMP PROPOSAL ARE AS FOLLOWS:

Rule M-3(1)(n) - Response to Paragraph 1 - TJS/DH

To insure that the ground-water system is protected, the following stipulations must be incorporated into the operation and reclamation plan:

1. Upon review of final design configuration of the leach dumps, the Division shall determine the appropriate level of residual concentration of free cyanide left in solution;

2. While the leach dump is being neutralized, at least one test for arsenic, lead and heavy metals will be conducted and the results submitted to this office for review;

3. Surface runoff facilities will be constructed to divert surface runoff around and away from the heap;

4. An acceptable impervious cap will cover the entire top of the heap and will be sloped so all precipitation which falls on the cap will flow into the surface runoff facilities.

Response to Paragraph 2 - TJS/DH

Also based on the information provided, velocities in the diversion and bypass ditches are in the range of 0.73 to 18 feet per second. The Division cannot approve ditch velocities which are greater than the maximum allowable velocity for the materials for which the ditch is constructed. Therefore, the applicant must provide a determination of the proposed velocity and the maximum allowable velocity for each ditch. For each ditch with a proposed velocity greater than this maximum allowable velocity, a design of erosion protection (riprap, filter blankets, gabions, etc.) must be provided.

Rule M-10(8) - JRH

The operator has not sufficiently addressed concerns regarding the ultimate layout for the leach dump pads, pits or tailings and waste facilities. Drawings and designs will be required indicating the expected ultimate contours for reclamation including the establishment of surface drainage and water diversions. Earlier review of the proposed leach dump facilities requested that this information be incorporated into the mine plan proposal for the new pits for this area. Hydrologic calculations have been provided for in the text of the January 15th proposal, but postreclamation conditions for drainage and surface water control have not been sufficiently addressed.

Rule M-10(12) - SCL

Barrick has still not supplied the lists of vegetation species found in each vegetation type. This was a condition of approval of the dump leach areas.

Boundaries delineating the permit area and the various disturbed areas must be added to the vegetation map.

The application does not indicate how long the test plot program will exist. Barrick must submit a report yearly on the results of the test plots, and a final wrap-up report at the end of the program.

Rule M-10(14) - EH

The dump leach pads must be covered with four feet of soil and not 12 inches as indicated in Table 2.4-1. This depth is required to ensure enough soil over the clay cap for shrub establishment. This actual depth would require an additional 204,000 cubic yards of soil. The plan should be changed to reflect this issue.

DEFICIENCIES IN THE JANUARY 15, 1986 PROPOSAL WITH RESPECT TO THE THREE NEW PITS AND OVERALL PLAN ARE AS FOLLOWS:

Rule M-3 - JRH

Map 1.1-1 which identifies the proposed permit area and existing topography should include the total permit area in acres. This map should also show the disturbed areas and their acreages.

Map 1.2-1 indicates the surface and mineral ownership. It is unclear as to which areas are surface and mineral owners and what the boundaries actually are. Leased areas should indicate the owner of the property. The names of the surface and mineral owners as shown in Table 1.2-1 should be included on the map. The permit area boundary should also be included on this map for reference.

Map 2.01 provides a good overall picture of the expanded facilities for the operation. However, additional drawings should be provided to show details such as pit and dump elevations, projected ultimate contours for the areas, drainage (both pre and postreclamation), and details of other surface facilities and structures. This information should be placed on maps of sufficient scale so as to clearly show these details and would be used in earthwork calculations for bonding cost estimates.

No map has been provided indicating the location and extent of existing underground and surface mined areas within the limits of the affected areas. The operator must provide a map with this information.

Rule M-3 (1)(h) - DH

1. The operator must justify the 10yr. - 24hr. precipitation figure used in the peak flow calculations for the conveyance ditches. The value of 1.78 inches is considered low (see Getty amendment dated June 13, 1985).

2. Peak flow determination based on the SCS Type B rainfall distribution is inappropriate. Utah's climatic regime dictates use of the Type II distribution (see Getty amendment dated June 13, 1985).

3. The operator must justify the curve number of 30 used for the waste rock dump slopes (see Getty amendment dated June 13, 1985).

4. In reference to the Mercur mine drainage plan, the operator must show the calculations that resulted in the design peak flows of 40 CFS for reaches A - J, and 122 CFS for reaches K - T. Do these design flows represent the 10yr. - 24hr. storm peaks? In addition the operator must delineate on a map of suitable scale the actual watershed boundary areas (depicting both disturbed and undisturbed areas) that these conveyance structures drain.

5. The operator must submit actual storage volume capacities for ponds B, C, C2 and D. A discrepancy exists between the capacity estimated for pond B in the January 19, 1983 submittal and the company's June 3, 1985 correspondence. All watershed areas draining to these ponds must be delineated clearly on a map of appropriate scale. It must be shown by proper hydrologic methodology that these ponds can contain the runoff volumes resulting from a 10yr. - 24hr. storm event on the respective watershed area(s), or safely pass the overflow where necessary. Pond B should also be delineated on the drainage map.

6. Delineate on a map of appropriate scale the actual watershed areas (depicting both disturbed and undisturbed drainages) draining to the Golden Gate and Hillside Ponds and the Meadow Canyon Reservoir.

7. A diagram must be submitted showing the configuration of the natural channel that conveys runoff from point "T" on the Mine Drainage map to the Golden Gate Pond. Also include calculations which demonstrate its ability to convey the peak flow resulting from a 10yr. - 24hr. storm from the upstream drainage area.

8. The plans for the sediment pond designs must be certified by a registered professional engineer.

Rule M-3(2)(e) - SCL

Page II-65 of the application states that topsoil stockpiles will be seeded the fall following establishment. What seed mix will be used for this or any other interim reclamation?

A total of 451 acres in at least three different vegetation types will be disturbed. A reclamation plan for each different vegetation type needs to be prepared, unless Barrick can show that the vegetation types are similar enough or disturbed areas small enough that different types can be lumped. Final reclamation plans need not be submitted until after the test plot program is finished. However, the current program doesn't seem to be designed to show how proposed revegetation species will respond to varying soils, slopes, exposures or altitudes, so it is unclear how the final revegetation plans will be developed.

To aid in the development of a comprehensive revegetation plan for the area, Barrick should submit a reclamation map which shows all areas (and acreages) that will be reclaimed, depth of soil to be applied in each area, and seed mix, shrub planting, mulch and fertilizer type for each area.

Rule M-3(2)(f) - SCL

A timetable for the accomplishment of each major step in the reclamation plan must be submitted.

Rule M-5 - JRH

The operator has indicated that detailed cost estimates and bonding information will follow in the near future. Until such details are furnished to the Division, no approvals, or conditional approvals of the proposal will be granted.

Rule M-6 - JRH

The operator must submit sufficient contour maps and/or cross sections to determine the following:

1. The location and disposition of all waste materials generated from the mining and leach dump operations.

2. The projected postmining and post reclamation contours of the area, in sufficient detail to determine surface drainage patterns, final slopes of the area, and to determine earthwork calculations required for reclamation bonding cost estimates.

3. The location, depths, quantities and area extent for topsoil and nontoxic cover materials sufficient to determine mass balance quantities for earthwork calculations.

Rule M-10(1) - SCL

Due to the large area of disturbance, and the wildlife values of the area, a plan for wildlife mitigation during active operations and during reclamation must be submitted.

Rule M-10(3) - JRH

The drawings submitted by the Operator do not specify what measures will be employed to ensure that all areas are non-impounding and self draining. Primarily, impoundments will occur in the bottoms of the pits, and secondarily along the basins or slopes formed by the dumps. Sufficient detail must be provided in the reclamation plan to prevent impoundments from occurring on the site.

In the event that impoundments may be left by the operator, such as in the bottoms of the mine pits, the operator shall be required to provide adequate design for these impoundments and approval from other state agencies for the retainment of such impoundments.

Rule M-10(4) - JRH

The operator has indicated that most of the slopes from the waste dumps and embankments will be rounded off to blend into the surrounding contours of the area. As indicated on page II-66 of the proposal, the waste rock dumps will generally be left with their acquired topography (generally 1.5:1 slope) except for some rounding of sharp angles along the top. It is assumed by the Division that this material has been placed by end dumping which would indicate that the material is at the angle of repose. These slopes will require stability analysis to remain for postmining conditions. The operator shall provide long-term stability analysis on all slopes to be left steeper than 1.5:1. Such slopes must achieve a static factor of safety of 1.3 or greater. This analysis can be provided by performing stability analysis on critical sections of the slopes, and on typical cross sections of the slopes and fill embankments to be left at greater than 1.5:1 slopes. All stability analyses provided by the operator shall be accomplished by a registered professional engineer.

Rule M-10(5) - JRH

The operator has indicated on page II-66 of the proposal that the pit walls will be blasted to a 0.75-1.5:1 slope during overburden removal for safety reasons. Rule M-10(5) requires that such highwalls be cut back to an angle of 45 degrees or less.

The Division shall provide a variance from this regulation if the operator can determine through analysis, that the pit walls have a long-term static factor of safety of 1.3 or greater. This analysis shall be provided in critical areas where the steepness of the cuts or geologic conditions are a primary factor in determining the stability.

Rule M-10(6) - JRH

Approval regarding final treatment of cyanide during operation of the facilities shall be subject to approval by the Department of Health or other agencies which may have further conditions subject to the treatment and final disposition of the leach dump.

Rule M-10(8) - JRH

The plan indicates that the mining operations will intercept abandoned underground workings. The reclamation plan must include measures to to close, cover or backfill such openings exposed in the process of the pit operations.

Rule M-10(13) - JRH

On page II-59 of the proposal, additional analysis of the dam is indicated in Attachment B. This attachment is not found in the document and should be incorporated into the text.

More detail should be incorporated into the reclamation plan to show drainage structures upon reclamation and the final configuration of the area upon completion of reclamation work.

Rule M-10(14) - EH

The Operator must clarify the locations from which the large amount of soil material will be stripped. The stripping depths of from 12 to 36 inches listed in table 2.4-1 are much greater than the available soil depths shown on plate 2.2-3. All proposed stripping depths must be supported by actual data.

General Comments - JRH

Some of the major concerns related to engineering and bonding are:

1. the location and amount of cover material to be placed in and over each area,

2. the location and distribution of topsoil materials,

3. the mass balances for earthwork,

4. the details and analysis for stability of highwalls and embankment slopes, and

5. other details as sufficient to determine acceptability of the design, quantities, equipment selection and productivity of equipment used for reclamation.

The reclamation plan needs sufficient details with respect to all reclamation construction activities to determine bond amount. Primarily, postmining and postreclamation maps and earthwork calculations need to be included in the plan.

Slopes and highwalls left after mining operations have ceased must be left in a stable condition and suitable to other reclamation conditions such as postmining land use, revegetation requirements and conditions, surface drainage and erosion protection. Sufficient analysis must be made by the operator to demonstrate that stable and suitable conditions are realized through reclamation activities.

The submittals for the dump leach pads should be incorporated into the operation and reclamation plan. The January 15th proposal indicates that the dump leach pads have been approved by the Division. The dump leach pads have only been conditionally approved. The Division will not continue with the permitting of the new application until the remaining conditions are resolved for the dump leach pad proposals.

In order to expedite the review process, please provide a response to the above deficiencies before April 5, 1986, if possible.

The Division appreciates your cooperation and patience in completing this permitting action. We would like to schedule an onsite visit to the minesite sometime during the week of March 17 - 21, 1986 to discuss these review comments and inspect the proposed layout first hand.

We will be contacting you directly to arrange an appropriate date and time for the onsite visit. Should you have any questions or concerns, please contact me or D. Wayne Hedberg of the permitting staff.

Sincerely,

L. P. Braxton

L. P. Braxton
Administrator
Mineral Resource Development
and Reclamation Program

DMW/btb
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